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(54) Title: MAGNETIC RESONANCE IMAGING OF METAL CONCENTRATIONS

(57) ~~Abstract:~~ Provided herein is a method of magnetic resonance imaging (MRI) for *in vivo* mapping of concentration of a target metal ion in at least one tissue using a contrast agent selectively sensitive for the amount of target metal ion where the contrast agent itself contains a non-hydrogen imaging nucleus. Also provided a method of diagnosing a disease state and of monitoring the efficacy of a therapeutic regimen to treat the disease state using the magnetic resonance imaging methods.

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